



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/995,678	11/29/2001	Takashi Hosoya	Q67410	1021

7590 02/11/2003

SUGHRUE, MION, ZINN, MACPEAK & SEAS  
2100 Pennsylvania Avenue, N.W.  
Washington, DC 20037

EXAMINER

THOMPSON, KENNETH L

ART UNIT	PAPER NUMBER
----------	--------------

3679

DATE MAILED: 02/11/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

SR

**Office Action Summary**

Application No.

09/995,678

Applicant(s)

HOSOYA ET AL.

Examiner

Kenn Thompson

Art Unit

3679

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --****Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All   b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Specification***

The disclosure is objected to because of the following informalities:

The recitation on page 12-13, line 16, "Zepper or a Tzepe" should be changed to "Rzeppa".

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-6 and 12 are rejected under 35 U.S.C. 102(e) as being anticipated by Hayama et al., U.S. 6,332,844.

The applied reference has a common assignee with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claims 1-4, Hayama discloses in figures 1-5 a constant velocity joint for use with a propeller shaft (10). Hayama discloses an outer race (1) having a spherical inner surface (1a) with a plurality of track grooves (1b) defined therein. Hayama discloses each track groove having a groove bottom of longitudinal sectional shape representing a curve (fig 1). Hayama discloses an inner race (2) having a spherical outer surface (2a) having a plurality of track grooves (2b) defined therein in correspondence with the respective track grooves in the outer race. Hayama discloses the track groove in the inner race having a groove bottom of a longitudinal sectional shape of a curve. Hayama discloses a plurality of balls (3) interposed between the outer and inner races and rotatably accommodated between the mating track grooves in the outer and inner races (fig 2). Hayama discloses a retainer (4) having a plurality of pockets accommodating the balls. Hayama discloses the retainer having a spherical outer surface held in surface contact (4a) with the spherical inner surface of the outer race and a spherical inner surface held in surface contact (4b) with the spherical outer surface of the inner race. Hayama discloses the track grooves in the outer race having a center of curvature lying in an axial section of the outer race (O1). Hayama discloses the track grooves in the inner race having an center of curvature lying on an axial section of the inner race (O2). Hayama discloses the center of curvature of each track groove in the outer race and the center of curvature of the track groove in the inner race being offset an equal distance fore and aft the angle center of the joint. Hayama discloses use of post hardening cut surfaces (col. 7, line 64 - col. 8, line 3) on the spherical inner surface of the outer race (1a), spherical outer surface of the inner race (2a) and the inner surface of the of the pockets (4b).

As to claim 5, Hayama discloses in figure 1 the outer race (1) having an inlet mouth (1 opposite 10) and a rear opening (1 at 10) opposite the inlet mouth and having a diameter smaller than the diameter of the inlet mouth. Hayama discloses the outer race having a fitting flange (radial extension of 1; col. 7, lines 8-10) formed therewith at a location radially outwardly of an outer periphery of the inlet mouth and a cylindrical mount (13 at 1; fig 1) formed so as to protrude axially outwardly from the opening. Hayama discloses a propeller shaft (10) extends through the rear opening and is engaged with the inner peripheral surface (2c) of the inner race.

As to claim 6, Hayama discloses in figure 2 eight track grooves (1b, 2b) in the inner and outer races.

As to claim 12, Hayama discloses in figure 4B track grooves in the outer race having an oval transverse sectional shape.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayama et al., U.S. 6,332,844 in view of Yamamoto et al., U.S. 6,367,981

As to claims 7-9, Hayama et al. discloses the retainer (4). Hayama et al. Does not disclose the surface of the retainer has a surface treatment layer of solid lubricant that is a low temperature sulfurized layer. Yamamoto et al. teaches in figure 1 use of a retainer (4) having a surface treatment layer of solid lubricant that is a low temperature

Art Unit: 3679

sulfurized layer (col. 2, lines 2-21) to enhance performance in elevated temperature, vacuum, special atmosphere, extreme low temperature and irradiation environments. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the surface of the retainer disclosed by Hayama to have a surface treatment layer of solid lubricant that is a low temperature sulfurized layer; as taught Yamamoto et al. to enhance performance in elevated temperature, vacuum, special atmosphere, extreme low temperature and irradiation environments.

Claims 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayama et al., U.S. 6,332,844 in view of Jacob et al., U.S. 5,580,313.

As to claim 10, Hayama discloses the track grooves of the inner (2b) and outer (1b) races. Hayama does not disclose the corresponding ball cooperate to define radial gaps there between of less than 0.05 mm. Jacob et al., teaches use of the ball to cooperate with the inner and outer races to define radial gaps there between of less than 0.05 mm (col. 4, lines 56-67) to provide the functional play that is required for the functioning of the joint. It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the ball discloses by Hayama et al. to cooperate with the inner and outer races to define a gap therebetween of less than 0.05 mm as taught by Jacob et al. to provide the functional play that is required for the functioning of the joint

A to claim 11, Jacob et al teaches in figure 1 the pockets (10) in the retainer (11) and the corresponding ball (9) cooperate to define positive axial gaps (col. 5, lines 14-22).

Art Unit: 3679

***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fuhrmann et al., U.S. 6,398,886 disclose a similar post hardening surface cut. Kako et al., U.S. 4,305,263 and Bird et al., U.S. 5,230,659 disclose similar track grooves.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenn Thompson whose telephone number is 703 306-5760. The examiner can normally be reached on 7:00 am - 4:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne H Browne can be reached on 703 308-1159. The fax phone numbers for the organization where this application or proceeding is assigned are 703 305-7687 for regular communications and 703 305-7687 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308-2168.

KT  
February 5, 2003

  
**Lynne H. Browne**  
**Supervisory Patent Examiner**  
**Group 3600**